

App. No. 10/553088
Office Action Dated November 21, 2007

REMARKS

Favorable reconsideration is respectfully requested in view of the following remarks.

Claims 1-13 and 15-25 are pending.

Claim rejections - 35 U.S.C. § 103

Claims 1-13, 15-18, 22 and 25 are rejected as being unpatentable over JP 2003-213112 (Otomo) in view of U.S. Patent No. 5,112,903 (Sakakibara). Applicants respectfully traverse the rejection.

The rejection notes that it is unclear why, when water is taught to be a plasticizer by Sakakibara and when Otomo discloses the inclusion of plasticizers, that one would not use water in the composition of Otomo. The rejection further notes that it is unclear why the inclusion of a plasticizer would not represent a predictable application of the known function. The rejection then contends that one would predict a known plasticizer to act as a plasticizer when used in the composition of Otomo since Otomo and Sakakibara both disclose the use of polyester resin blends. Applicants respectfully submit that one would not use Sakakibara's water as a plasticizer in Otomo, and refer to paragraphs [0003], [0041] and [0056] of Otomo.

Paragraph [0003] of Otomo provides the following:

"In recent years, as Containers and Packaging Recycling Law has come into force, separate collection of PET bottles has begun and conversion into recycled products has been promoted. However, PET resin has its own drawback in that the physical properties tend to be lowered due to hydrolysis, and thus, its application is still restricted in an actual condition. Namely, since water absorbed in a cleaning process after grinding PET bottles cannot be completely removed in the following drying process, in processing this PET ground product into pellets through thermal melting, a notable reduction of molecular weight due to hydrolysis reaction takes place, leading to the lowering of physical properties of molded articles being molded using the pellets. In particular, in extrusion molding or blow molding for which melt tension is required, a sagging phenomenon due to the own weight of molten resin (so-called drawdown) is remarkable, and as such, the molding itself is very difficult."

Here, Otomo clearly identifies the problem as the presence of moisture when manufacturing a resin composition by kneading a raw material composition containing PET. The reference notes that the presence of moisture leads to a hydrolysis reaction of PET during processing into pellets through thermal melting, thereby causing degradation in physical

App. No. 10/553088
Office Action Dated November 21, 2007

properties. As described in paragraph [0056], Otomo's approach is to knead the raw material composition containing PET at a temperature lower than the melting point of PET so that the PET remains in the solid phase. As such, Otomo hardly can be understood to teach or even suggest adding additional moisture during the kneading step.

The rejection notes that Otomo teaches the addition of a plasticizer in paragraph [0041], and contends that since Sakakibara teaches the use of water as a plasticizer, one would use water as a plasticizer in Otomo. However, in paragraph [0041], Otomo notes that a plasticizer may be added to the mixture as long as the physical properties are not damaged, and in paragraph [0003], as mentioned above, Otomo notes that moisture is what actually causes degradation in physical properties. Thus, contrary to the rejection's assertion, it is abundantly clear that one would not use water as a plasticizer in Otomo, as Otomo clearly teaches away from any additional presence of moisture. From the above, it is also abundantly clear that whether Otomo and Sakakibara use different polyester resin blends is relevant, as the use of different polyester resin blends would be expected to yield different results depending upon what type of plasticizers are used.

Accordingly, Applicants respectfully submit that claim 1 and the dependent claims therefrom are patentable over Sakakibara and Otomo.

Moreover, the rejection contends that whether Sakakibara and Otomo are using different polyester resin blends is moot since Sakakibara is used solely to teach the use of water as a plasticizer for use in polyester resins. However, as is apparent from the above discussion, Otomo clearly teaches against adding moisture while mixing, and in no way teaches or suggests adding any additional material during kneading. As such, contrary to the rejection's assertion, Applicants respectfully submit that the rejection must necessarily rely on Sakakibara for the addition of water while kneading, and thus, whether the moisture shrinkable resin of Sakakibara corresponds to Otomo's PET is relevant.

As noted previously, Otomo's PET has a significantly low moisture absorption rate as is apparent from the fact that Otomo's PET is derived from containers for soft drinks and food. Also, when Otomo's PET is heated at 150°C or higher, it reacts with moisture but this reaction is not a shrinkage but a hydrolysis reaction. On the other hand, the moisture shrinkable resin of Sakakibara absorbs moisture and shrinks at a temperature of 50°C or lower. Therefore, it would not have been obvious to the ordinary skilled artisan to combine Otomo and Sakakibara, as the references clearly involve the use of resins with entirely different properties. The components

App. No. 10/553088
Office Action Dated November 21, 2007

used in the two references thus are not functioning in such a way in the presence of moisture so that their interchange from one system to the other would represent a predictable application of the known function. Accordingly, claim 1 and the dependent claims therefrom are further removed from the references for these reasons.

Claims 1-13, 15-18, 22 and 25 are rejected as being unpatentable over Sakakibara in view of Otomo. Applicants respectfully traverse the rejection.

The rejection contends that it is unclear why the interchange would not lead to a predictable application of the composition of Sakakibara when Otomo discloses said composition to have superior molding and mechanical properties. However, as noted above, Otomo teaches in paragraph [0003] that when using PET, the presence of moisture is what actually causes the hydrolysis of PET, thereby leading to the degradation in physical properties. On the other hand, Sakakibara teaches that in the presence of moisture, the moisture shrinkable resin used by Sakakibara absorbs moisture and experiences little decrease in tensile strength during shrinkage by moisture. As such, contrary to the rejection's assertion, it is abundantly clear that the resins used in the two references are not functioning in such a way in the presence of moisture that their interchange from one system to the other would represent a predictable application of the known function of the resins. Moreover, Otomo specifically teaches against the combination of the references. Accordingly, Applicants respectfully submit that claim 1 and the dependent claims therefrom are patentable over Sakakibara and Otomo.

Claims 19, 21, 23 and 24 are rejected as being unpatentable over Otomo and Sakakibara or Sakakibara and Otomo in view of JP 2000-052408 (Taguchi). Applicants respectfully traverse the rejection.

Claim 1 has been distinguished above from Otomo and Sakakibara. Claims 19, 21, 23 and 24 depend from claim 1, and are distinguishable over the references for at least the same reasons. Taguchi does not cure the deficiencies of Otomo and Sakakibara. Therefore, claims 19, 21, 23 and 24 are patentable over Otomo, Sakakibara and Taguchi, taken alone or separately. Applicants do not concede the correctness of the rejection.

Favorable reconsideration and withdrawal of the rejection are respectfully requested.

Claim 20 is rejected as being unpatentable over Otomo and Sakakibara or Sakakibara and Otomo in view of JP 2004-195685 (Masadu). Applicants respectfully traverse the rejection.

App. No. 10/553088
Office Action Dated November 21, 2007

Claim 1 has been distinguished above from Otomo and Sakakibara. Claim 20 depends from claim 1, and are distinguishable over the references for at least the same reasons. Masadu does not cure the deficiencies of Otomo and Sakakibara. Therefore, claim 20 is patentable over Otomo, Sakakibara and Masadu, taken alone or separately. Applicants do not concede the correctness of the rejection.

Favorable reconsideration and withdrawal of the rejection are respectfully requested.

In view of the foregoing, favorable reconsideration in the form of a notice of allowance is requested. Any questions or concerns regarding this communication can be directed to the attorney-of-record, Douglas P. Mueller, Reg. No. 30,300, at (612) 455.3804.

Respectfully Submitted,

Douglas P. Mueller
Reg. No.: 30,300
Hamre, Schumann, Mueller & Larson, P.C.
225 South Sixth Street
Suite 2650
Minneapolis, MN 55402
612.455.3800

DPM/ym

